



16869C-005400US  
George B. F. Yee, Reg. No. 37,478  
Telephone: 650-326-2400  
Inventors: Satoshi Yoshizawa et al.  
Title: Method and Apparatus for Managing Quality of Service  
in Network Devices  
Sheets of drawings 1 of 12

1/12

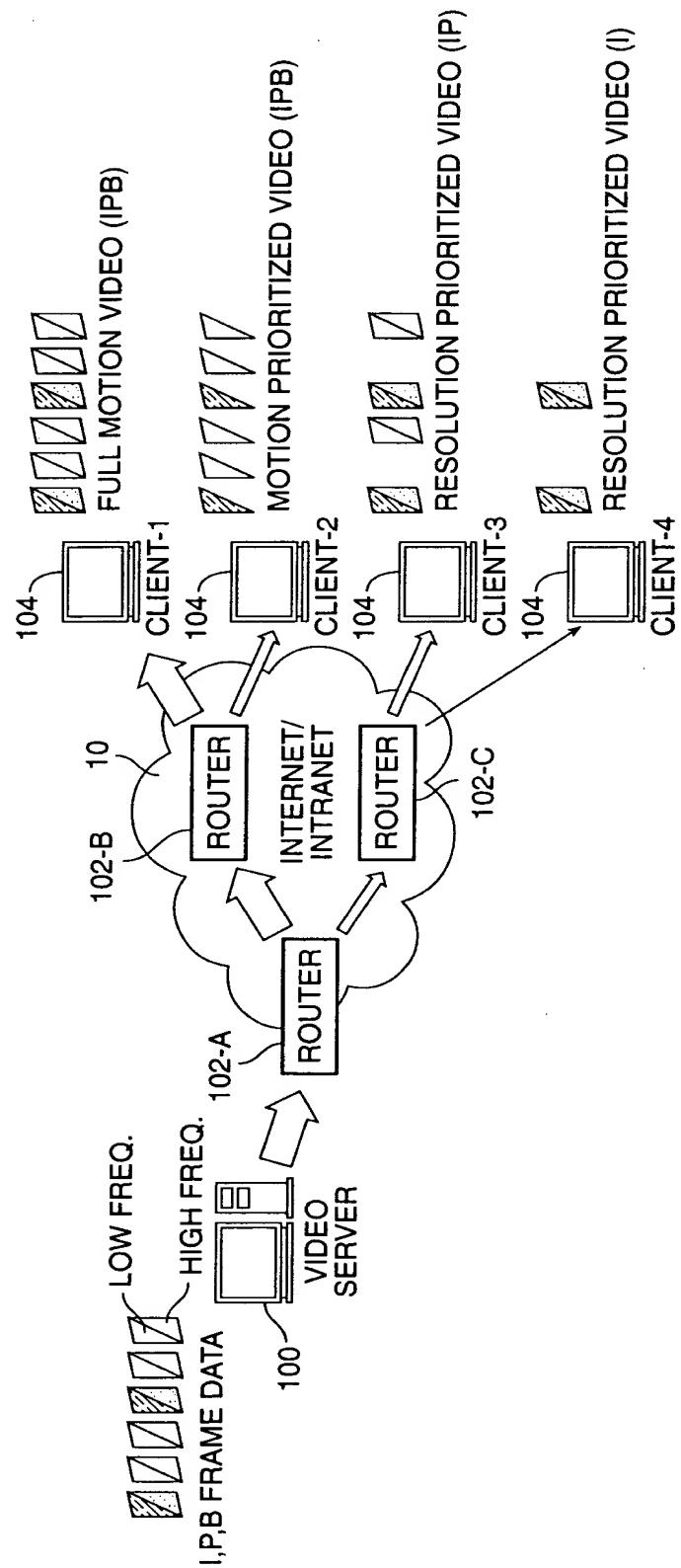


FIG. 1

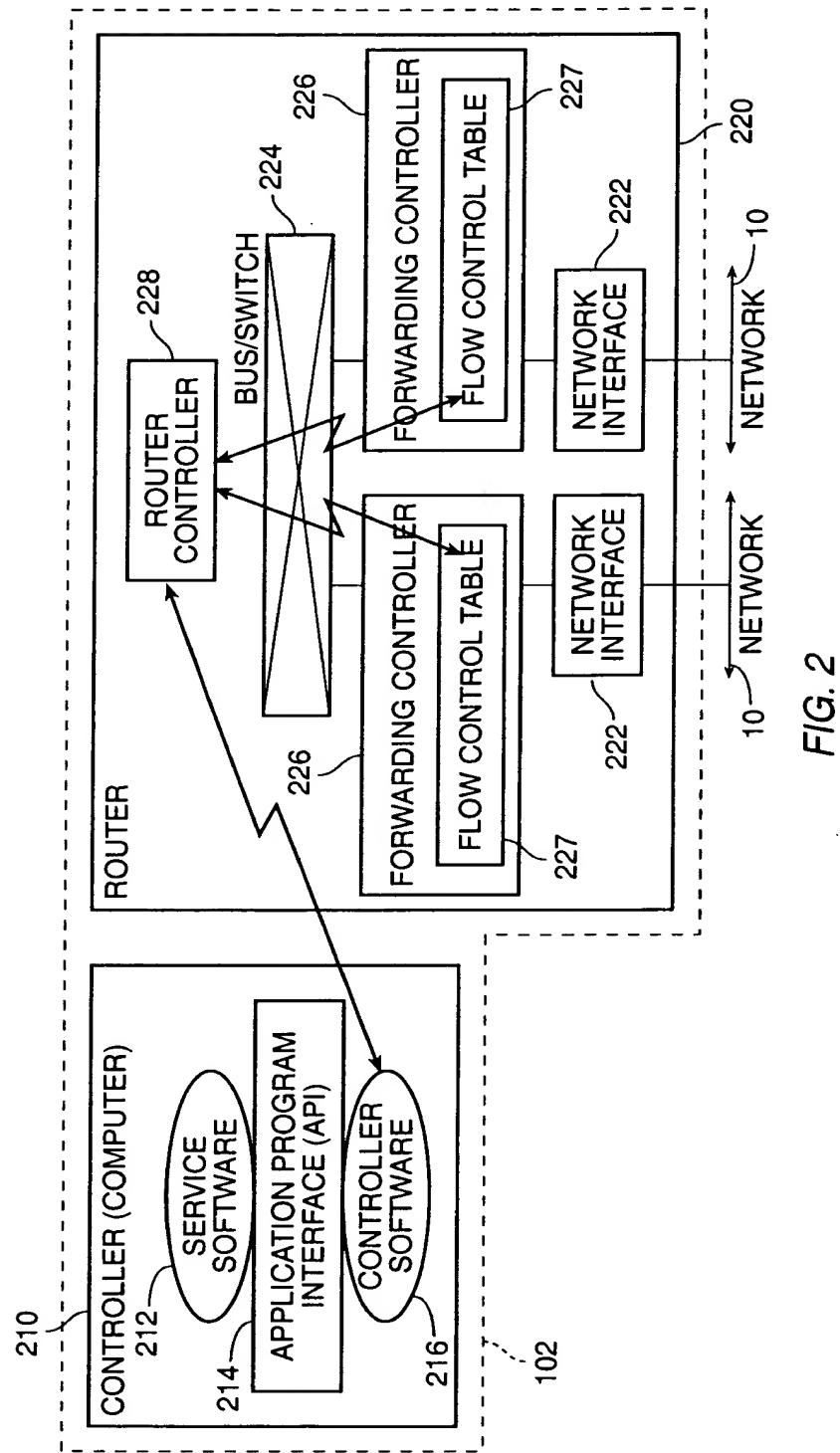


FIG. 2

3/12

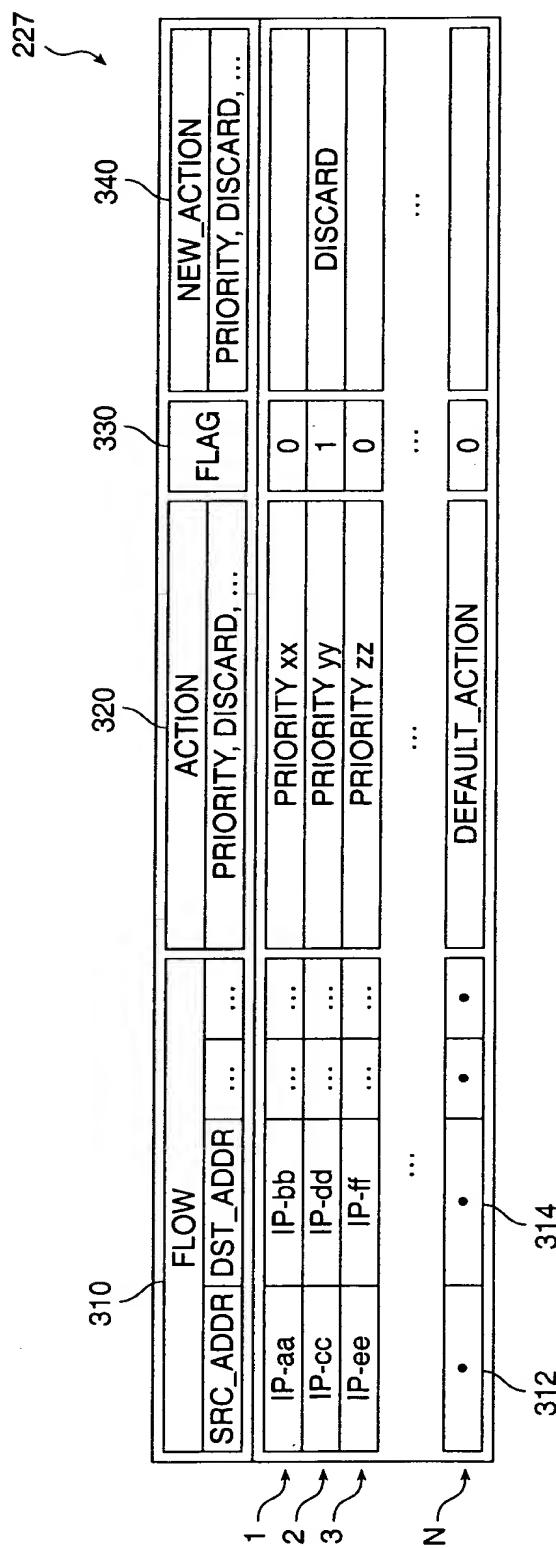


FIG. 3

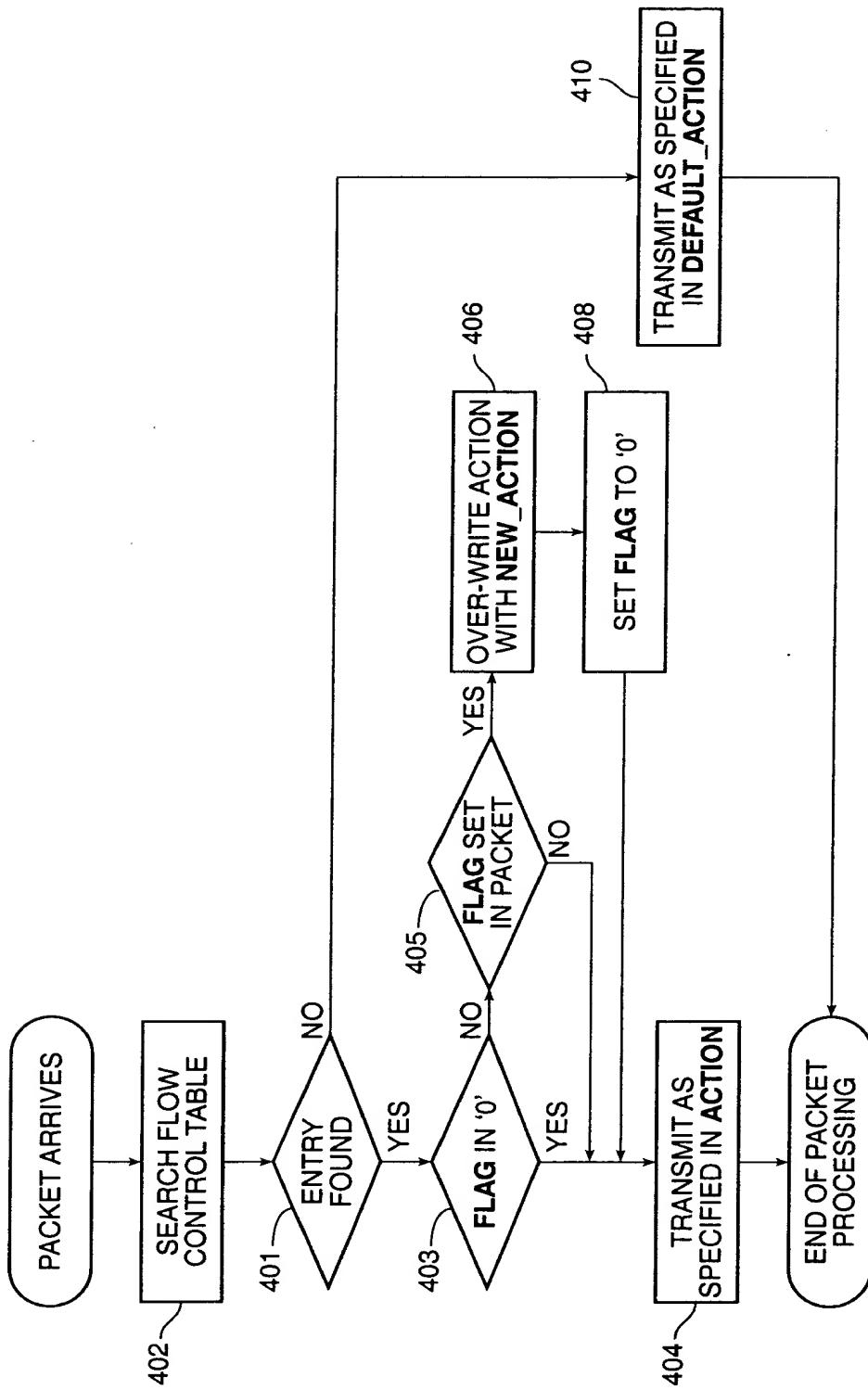


FIG. 4

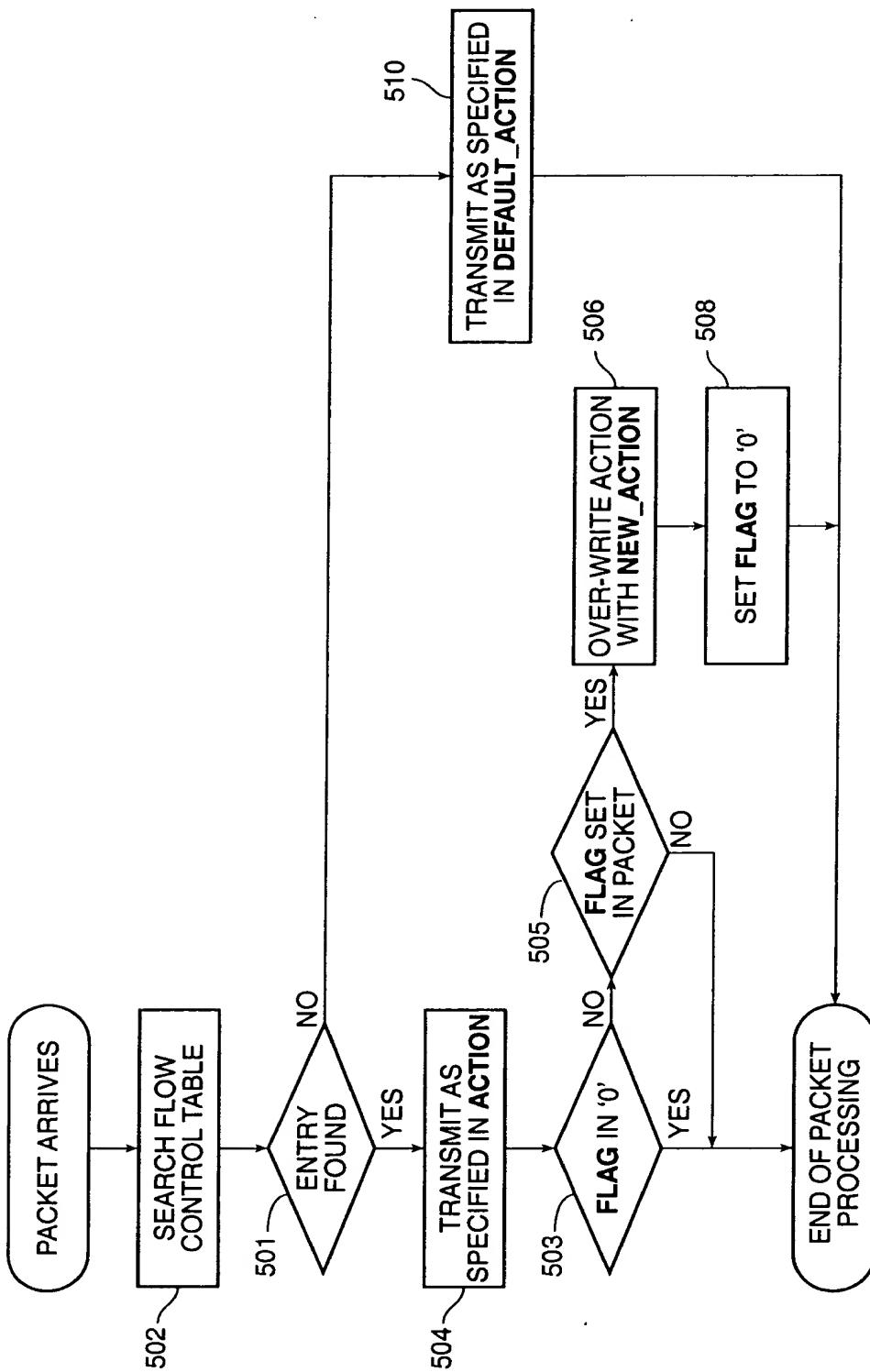


FIG. 5

6/12

```
struct END_POINT {
    IP_ADDRESS          ipaddr ;      /* may be range of addresses */
    unsigned short       port ;       /* may be range of ports */
    ...
};

struct FLOW {
    END_POINT           source ;
    END_POINT           destination ;
    ...
    octet               protocol_id ;
    ...
};

struct ACTION {
    ...
    /* Specify priority, mode (DISCARD), etc. */ 
    /* Could be a list, relating values of particular packet field to an ACTION */
    ...
};

enum FLAG { CHANGE_IMMEDIATE, CHANGE_SYNCHRONOUS } ;

boolean Set_QoS ( in FLOW target_flow, in ACTION new_action, in FLAG flag ) ;
```

*FIG. 6*

7/12

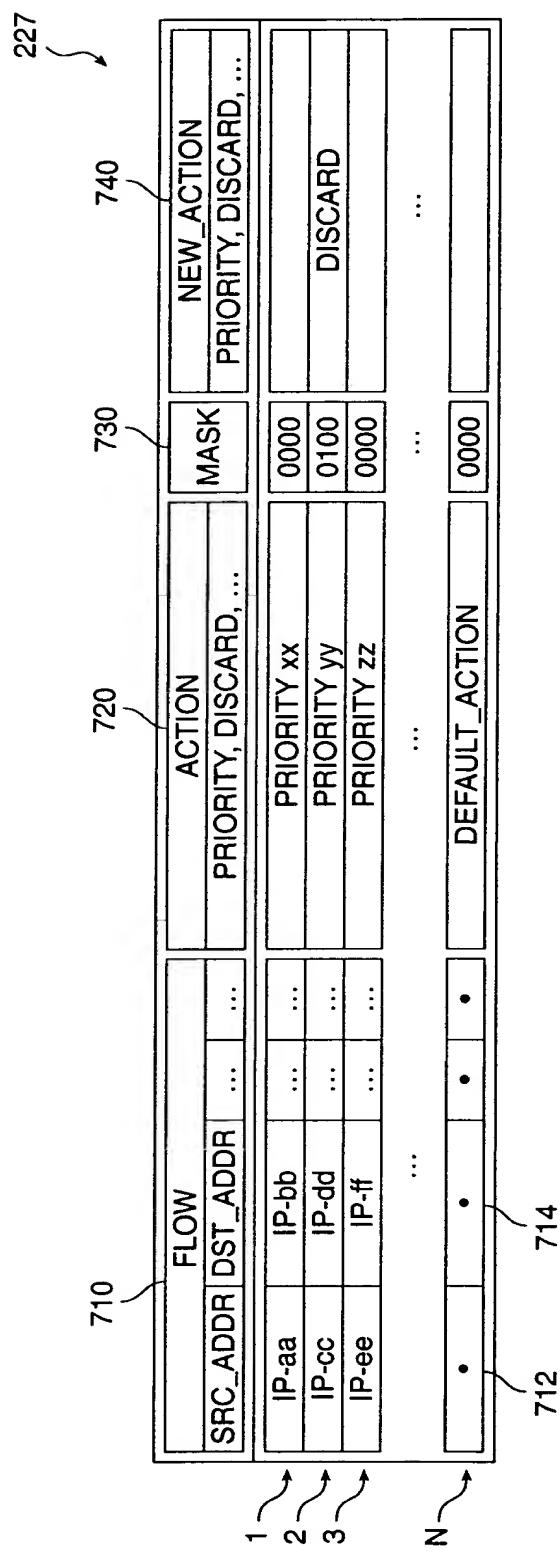


FIG. 7

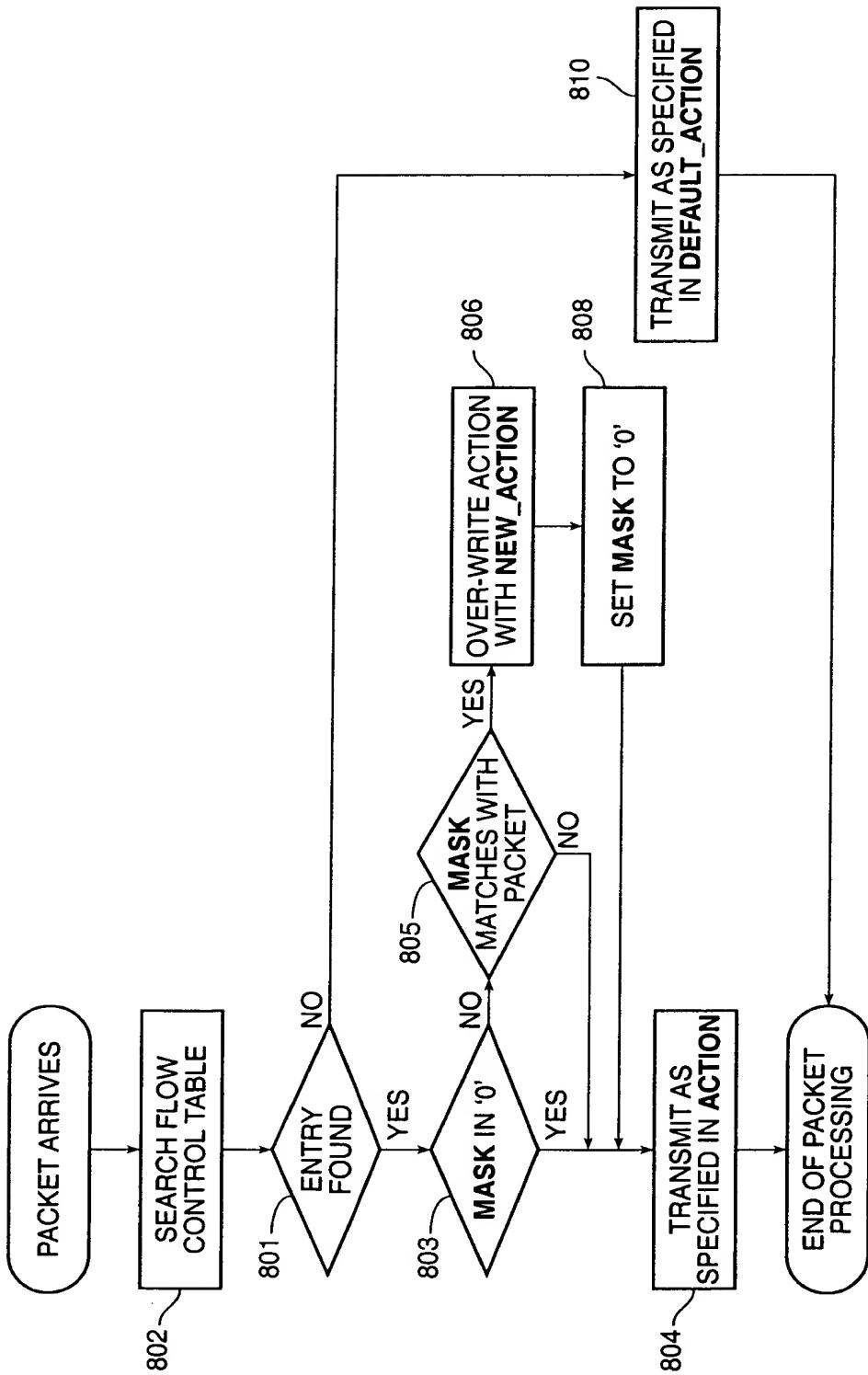


FIG. 8

9/12

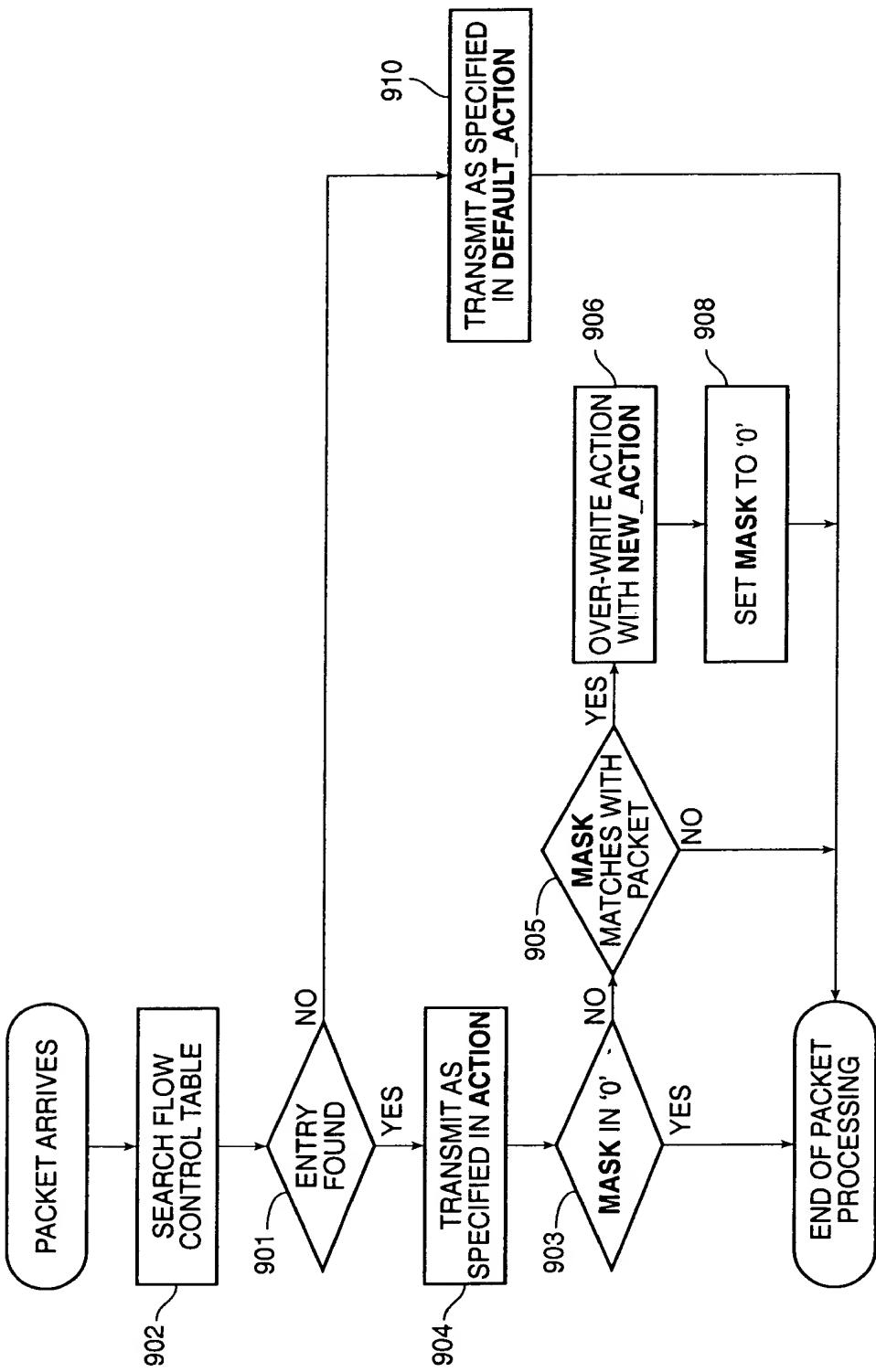


FIG. 9

10/12

**boolean Set\_QoS ( in FLOW target\_flow, in ACTION new\_action, in octet mask ) ;**

*FIG. 10*

**enum HEADER\_FIELD { TOS\_FIELD, ... } ;**

**typedef sequence<octet> FIELD\_VALUE ;**

**struct PAYLOAD\_FIELD {**  
    **unsigned short** offset\_position ;  
    **unsigned short** field\_field ;  
};

**enum MASK\_POSITION { IN\_HEADER, IN\_PAYLOAD } ;**

**union MASK switch (MASK\_POSITION) {**  
    **case IN\_HEADER:**  
        HEADER\_FIELD target\_header\_field ;  
        FIELD\_VALUE field\_value ;  
    **case IN\_PAYLOAD :**  
        PAYLOAD\_FIELD target\_payload\_field ;  
        FIELD\_VALUE field\_value ;  
};

**boolean Set\_QoS ( in FLOW target\_flow, in ACTION new\_action, in MASK mask ) ;**

*FIG. 11*

**boolean Set\_QoS ( in FLOW target\_flow, in ACTION new\_action ) ;**

**boolean Commit\_Change ( in MASK mask ) ;**

*FIG. 12*

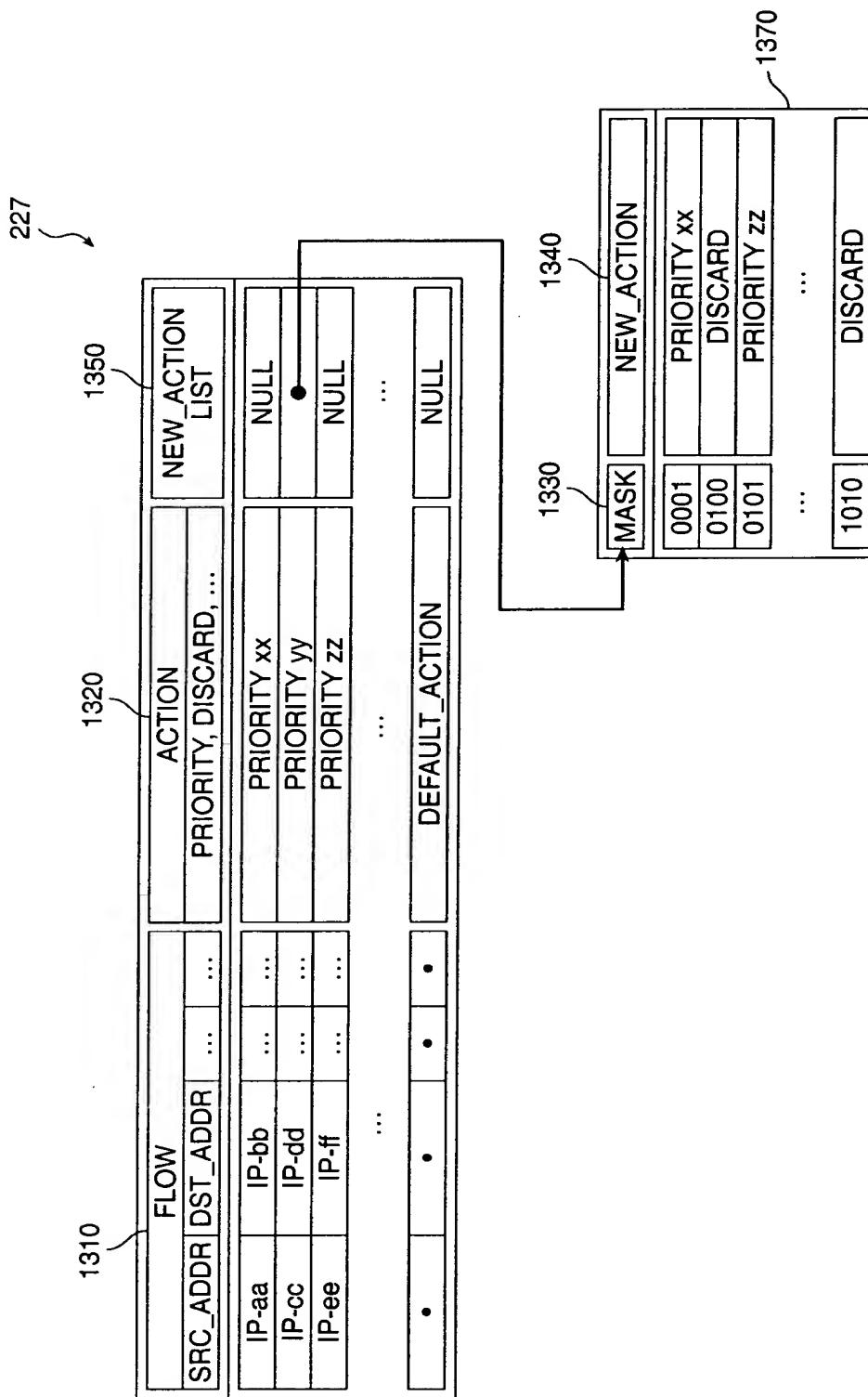


FIG. 13

12/12

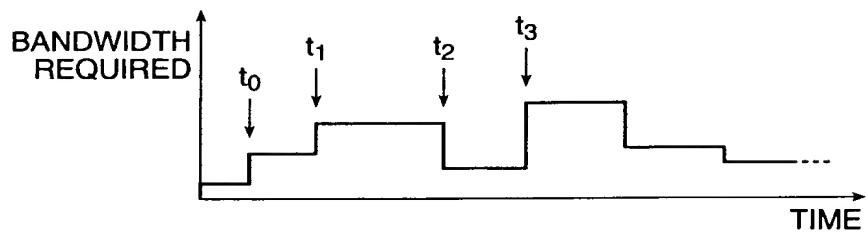


FIG. 14

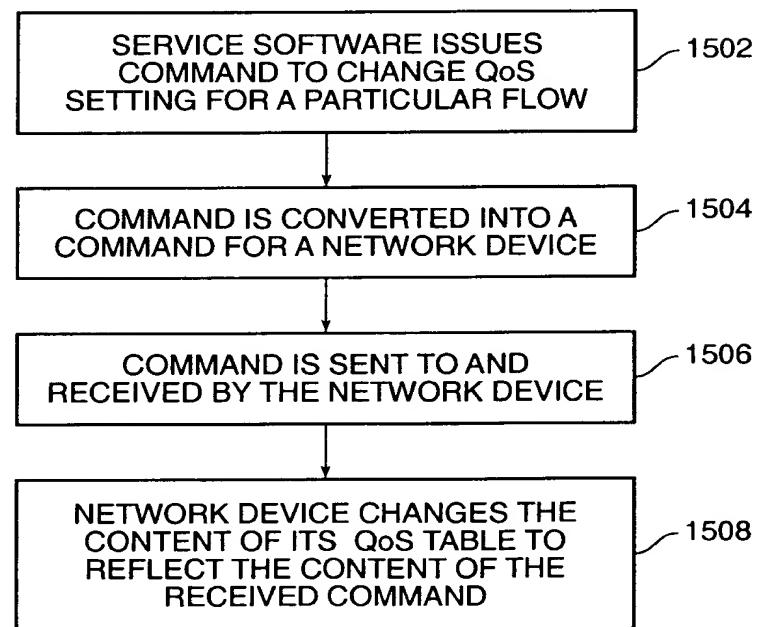


FIG. 15 PRIOR ART